



Delta Natural Gas Company, Inc.

3617 Lexington Road
Winchester, Kentucky 40391-9797

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May 20, 2008



RECEIVED

MAY 20 2008

**PUBLIC SERVICE
COMMISSION**

Stephanie Stumbo
Executive Director
Public Service Commission
P O Box 615
Frankfort, KY 40602

RE: Case No. 2008-006 2

Dear Ms. Stumbo:

Enclosed herewith are the original and three copies of Delta's response to the Second Data Request of the Commission Staff dated May 6, 2008 in the above-styled case.

Please indicate receipt of this filing by date stamping the enclosed duplicate of this letter and returning it for our files in the envelope provided.

Sincerely,

Connie King
Manager – Corporate & Employee Services

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION **RECEIVED**

MAY 20 2008

PUBLIC SERVICE
COMMISSION

In the Matter of:

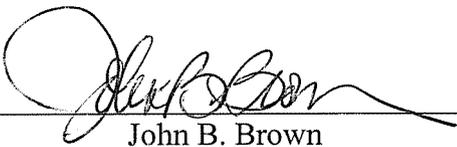
THE APPLICATION OF DELTA NATURAL)
GAS COMPANY, INC. FOR APPROVAL OF A)
CUSTOMER CONSERVATION/EFFICIENCY)
PROGRAM AND DEMAND SIDE MANAGEMENT)
COST RECOVERY MECHANISM)

CASE NO. 2008-00062

CERTIFICATION

The undersigned, John B. Brown, states that he is Chief Financial Officer, Treasurer and Secretary of Delta Natural Gas Company, Inc., a corporation, ("Delta") and certifies that he supervised the preparation of the responses of Delta to the Second Data Request of Commission Staff to Delta herein and that the responses are true and accurate to the best of the undersigned's knowledge, information and belief formed after a reasonable inquiry.

Dated this 20th day of May, 2008.



John B. Brown

DELTA NATURAL GAS COMPANY INC
CASE NO. 2008-0062

SECOND DATA REQUEST OF COMMISSION STAFF
DATED MAY 6, 2008

1. Refer to Item 1 of Delta's response to the Commission Staff's ("Staff") first data request.

a. Refer to Exhibit 1. Page 1 of 8 has a footnote stating that the "Program budget and conservation estimates per appliance are included in the Program Document, submitted as Exhibit MDW-1 to the Wesolosky testimony." Clarify where in the current application this information is located.

b. Refer to page 2 of 8. Explain how Delta derived its discount rate of 8.867 percent.

c. Refer to page 3 of 8. Update the bill reduction calculation with the demand charge actually granted in Delta's last rate case and its most recently approved Gas Cost Adjustment ("GCA").

d. Refer to Exhibit 2, page 3 of 5. Update the utility avoided supply costs to reflect Delta's most recently approved GCA.

RESPONSE:

1.

a. The Program Document, as filed in Case No. 2007-00089, was resubmitted as Exhibit 1 with the current application for the DSM program filed February 20, 2008. The following items are detailed in the Program Document:

- number of program participants page 12
- budgeted expenditures page 13
- conservation estimates page 14

The calculation of Ccf conserved on page 3 of KYPSC DR1-1 Exhibit 1 is provided on page 2 of the exhibit provided for KYPSC DR1-7k.

b. The discount rate used was Delta's weighted average cost of capital, as initially filed in Case 2007-00089. The California Tests have been revised with this data request utilizing the capital structure in case 2007-00089 with the cost of

DELTA NATURAL GAS COMPANY INC
CASE NO. 2008-0062

SECOND DATA REQUEST OF COMMISSION STAFF
DATED MAY 6, 2008

equity updated to 10.5%, as stipulated by the settlement agreement. The revised discount rate is 8.232%. The revised "California Tests" have been provided as Exhibits 1 through 4 of this data request. The calculation of the discount rate has been provided as Exhibit 5.

c. Exhibit 1 has been revised using the demand charge granted in our last rate case (Case 2007-00089) and our most recently approved Gas Cost Adjustment (Case 2008-00102).

Exhibit 1, page 4 has been updated to reflect the expiration of the Residential Energy Tax Credits. The tax credits expired on December 31, 2007. Additionally, Exhibit 1, page 7; has been updated with the number of residential customers reported in our 2007 PSC Annual Report.

d. Exhibit 2 has been updated to reflect our most recently approved Gas Cost Adjustment, per case 2008-00102.

Based on the changes noted above in 1a.-d., the benefit-cost ratios of the revised "California Tests" are as follows:

| Test | Revised | Per DSM Application | Exhibit |
|--------------------------|----------------|--------------------------------|----------------|
| Participant | 3.59 | 3.33 | 1 |
| Ratepayer Impact Measure | 1.88 | 1.57 | 2 |
| Total Resource Cost | 1.20 | 1.07 | 3 |
| Program Administrator | 1.40 | 1.06 | 4 |

Sponsoring Witness:

Matthew D. Wesolosky

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Participant Test**

$$B_p = \sum_{t=1}^N \frac{BR_t + TC_t + INC_t}{(1+d)^{t-1}}$$

| t | BR _t | TC _t | INC _t | B _p |
|----|-----------------|-----------------|------------------|----------------|
| 1 | 74,357 | - | 120,400 | 194,757 |
| 2 | 74,357 | - | - | 74,357 |
| 3 | 74,357 | - | - | 74,357 |
| 4 | 74,357 | - | - | 74,357 |
| 5 | 74,357 | - | - | 74,357 |
| 6 | 74,357 | - | - | 74,357 |
| 7 | 74,357 | - | - | 74,357 |
| 8 | 74,357 | - | - | 74,357 |
| 9 | 74,357 | - | - | 74,357 |
| 10 | 74,357 | - | - | 74,357 |
| | 743,570 | - | 120,400 | 863,970 |

8.232% Discount Rate

\$605,005 NPV

- BR_t = Bill reductions in year t
- TC_t = Tax credits in year t
- INC_t = Incentives paid to the participant by the Utility

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Participant Test**

BR_t = Bill reductions in year t

| t | (1) Ccf Conserved | (2) Projected Gas Cost* | (3) Current Demand Charge | (4) (2) + (3) Combined Rate | (1) x (4) BR _t |
|----|-------------------------|-------------------------------|---------------------------------|--------------------------------------|------------------------------|
| 1 | 40,289 | \$ 1.430 | \$ 0.4158 | \$ 1.85 | \$ 74,357 |
| 2 | 40,289 | \$ 1.430 | 0.4158 | 1.85 | 74,357 |
| 3 | 40,289 | \$ 1.430 | 0.4158 | 1.85 | 74,357 |
| 4 | 40,289 | \$ 1.430 | 0.4158 | 1.85 | 74,357 |
| 5 | 40,289 | \$ 1.430 | 0.4158 | 1.85 | 74,357 |
| 6 | 40,289 | \$ 1.430 | 0.4158 | 1.85 | 74,357 |
| 7 | 40,289 | \$ 1.430 | 0.4158 | 1.85 | 74,357 |
| 8 | 40,289 | \$ 1.430 | 0.4158 | 1.85 | 74,357 |
| 9 | 40,289 | \$ 1.430 | 0.4158 | 1.85 | 74,357 |
| 10 | 40,289 | \$ 1.430 | 0.4158 | 1.85 | 74,357 |
| | | | | | \$ 743,570 |

- (1) Total projected Ccf savings, based on budgeted participation levels in year one of the program. See KYPSC DR1-7k for calculation.
- (2) As originally filed, the projected gas cost for subsequent years was based on the Department of Energy "Annual Energy Outlook". Per the Commission request in KYPSC DR2 - 1c, the gas cost has been updated using Delta's most recent GCR rate of \$1.4298, per Ccf (case 2008-00102).
- (3) Volumetric rate approved for residential customers in Case 2007-00089

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Participant Test**

TC_t = Tax credits in year t

| | (1) Program Participants | (2) Residential Energy Credits | (1) x (2) TC _t |
|--|--------------------------------|--------------------------------------|------------------------------|
| <u>A. High Efficiency Heating Savings</u> | | | |
| 1. High Efficiency Forced Air Furnaces | 160 | - | \$ - |
| 2. High Efficiency Dual Fuel Units | 20 | - | - |
| 3. High Efficiency Gas Space Heating | 20 | - | - |
| 4. High Efficiency Gas Logs/Fireplaces | 340 | - | - |
| <u>B. High Efficiency Water Heating Savings</u> | | | |
| 1. High Efficiency Holding Tank Models | 63 | - | - |
| 2. High Efficiency Power Vent Models | 6 | - | - |
| 3. High Efficiency On-Demand Models | 1 | - | - |
| Total | 610 | | \$ - |

Note: participants are eligible for tax credits in the year they incur expenditures for high-efficiency appliances, since this is an analysis of participation in a single year, the tax credit is applicable only where t = 1

- (1) Based on budgeted participation levels in year one of the CEP.
- (2) As originally filed in Case 2007-00089, the Residential Energy Credits were considered in the calculation of the benefit to the participant. The Residential Energy Credits expired December 31, 2007. Therefore, the above schedule has been updated to reflect this change in tax law.

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Participant Test**

INC_t = Incentives paid to the participant by the Utility, for $t = 1$

| | (1) Program Participants | (2) Rebate Amount | (1) x (2) INC_t |
|--|--------------------------------|-------------------------|----------------------|
| <u>A. High Efficiency Heating Savings</u> | | | |
| 1. High Efficiency Forced Air Furnaces | 160 | \$ 400 | \$ 64,000 |
| 2. High Efficiency Dual Fuel Units | 20 | 300 | 6,000 |
| 3. High Efficiency Gas Space Heating | 20 | 100 | 2,000 |
| 4. High Efficiency Gas Logs/Fireplaces | 340 | 100 | 34,000 |
| <u>B. High Efficiency Water Heating Savings</u> | | | |
| 1. High Efficiency Holding Tank Models | 63 | 200 | 12,600 |
| 2. High Efficiency Power Vent Models | 6 | 250 | 1,500 |
| 3. High Efficiency On-Demand Models | 1 | 300 | 300 |
| Total | 610 | | \$ 120,400 |

(1) Based on budgeted participation levels in year one of the CEP.

(2) Amount of rebate per CEP, per unit

Note: rebates are given to participant in the year they elect to participate, since this is an analysis of participation in a single year, the rebate is applicable only where $t = 1$

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Participant Test**

$$C_p = \sum_{t=1}^N \frac{PC_t + BI_t}{(1+d)^{t-1}}$$

| t | (1) BI _t | (2) PC _t | (1) + (2) C _p |
|----|------------------------|------------------------|-----------------------------|
| 1 | 4,229 | 177,060 | 181,289 |
| 2 | 345 | - | 345 |
| 3 | 345 | - | 345 |
| 4 | 345 | - | 345 |
| 5 | 345 | - | 345 |
| 6 | - | - | - |
| 7 | - | - | - |
| 8 | - | - | - |
| 9 | - | - | - |
| 10 | - | - | - |
| | 5,610 | 177,060 | 182,670 |

8.232% Discount Rate

\$168,551 NPV

- BI_t = Bill increases in year t
- PC_t = Participant costs in year t, which include incremental capital costs

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Participant Test**

$$BI_t = PF \times CEPRC$$

| t | (1) CEPCR | (2) CEPLS | (3) CEPI | (4) (1) + (2) + (3) CEPRC | (5) PF | (4) x (5) BI _t |
|----|--------------|--------------|-------------|---------------------------------|-----------|------------------------------|
| 1 | 167,120 | 16,756 | 21,416 | 205,292 | 0.0206 | 4,229 |
| 2 | | 16,756 | | 16,756 | 0.0206 | 345 |
| 3 | | 16,756 | | 16,756 | 0.0206 | 345 |
| 4 | | 16,756 | | 16,756 | 0.0206 | 345 |
| 5 | | 16,756 | | 16,756 | 0.0206 | 345 |
| 6 | | | | - | 0.0206 | - |
| 7 | | | | - | 0.0206 | - |
| 8 | | | | - | 0.0206 | - |
| 9 | | | | - | 0.0206 | - |
| 10 | | | | - | 0.0206 | - |
| | 167,120 | 83,780 | 21,416 | 272,316 | | 5,610 |

(1) - (3) Represents the individual components which comprise the CEP cost recovery. Amounts for year one are based on the year one program budget and expected participation.

For further explanation on the calculations behind (1) - (3) see the proposed tariff included with the application for Case 2008-00062

(1) CEPCR represents the program cost recovery of expenses for the given year. As noted this analysis is for a single year of participation, therefore the CEPCR is recovered where t=1.

(2) CEPLS represents the lost sales attributable to participation in the CEP. Lost sales for a given year are recovered annually through the CEP mechanism until the next general rate case when rates can be reset. Since this analysis is for a single year of participation the lost sales remain constant until the next general rate case. For the purpose of this analysis the next general rate case anticipated in five years.

(3) CEPI represents the incentive earned by the company based on the conservation in the given year. As noted this analysis is for a single year of participation, therefore the CEPI is recovered where t=1.

(5) BI_t represents the impact of increased rates on the program participants. Since the CEPRC is recovered from all residential customers, a factor was applied to determine the amount of impact to the CEP participants. This is a ratio of participants to the number of residential customers as of 12/31/07.

| | | |
|-----|--------|---|
| A | 656 | Budgeted CEP participants (year 1) |
| B | 31,829 | total residential customers, per 2007 PSC Annual Report |
| A/B | 0.0206 | Participant Factor (PF) |

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Participant Test**

PC_t = Participant costs for $t = 1$

| | (1) Program Participants | (2) Incremental Cost | (1) x (2) PC_t |
|--|--------------------------------|----------------------------|---------------------|
| <u>A. High Efficiency Heating Savings</u> | | | |
| 1. High Efficiency Forced Air Furnaces | 160 | \$ 613 | \$ 98,080 |
| 2. High Efficiency Dual Fuel Units | 20 | 613 | 12,260 |
| 3. High Efficiency Gas Space Heating | 20 | 143 | 2,860 |
| 4. High Efficiency Gas Logs/Fireplaces | 340 | 143 | 48,620 |
| <u>B. High Efficiency Water Heating Savings</u> | | | |
| 1. High Efficiency Holding Tank Models | 63 | 187 | 11,781 |
| 2. High Efficiency Power Vent Models | 6 | 455 | 2,730 |
| 3. High Efficiency On-Demand Models | 1 | 729 | 729 |
| Total | 610 | \$ | 177,060 |

IC = Incremental Costs for purchasing high-efficiency unit

- (1) Based on budgeted participation levels in year one of the CEP.
- (2) Incremental costs, per; KYPSC DR1-7c

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Ratepayer Impact Measure (RIM) Test**

$$NPV_{RIM} = B_{RIM} - C_{RIM}$$

| | |
|------------------|----------------|
| $B_{RIM} = \$$ | 623,214 |
| $C_{RIM} =$ | 332,146 |
| $NPV_{RIM} = \$$ | 291,068 |

Benefit-Cost Ratio **1.88**

Conclusion:

Since the net present value is greater than zero, the program will benefit rates and bills

Where:

- NPV_{RIM} = Net present value levels
- B_{RIM} = Benefits to rate levels or customer bills
- C_{RIM} = Costs to rate levels or customer bills

$$B_{RIM} = \sum_{t=1}^N \frac{UAC_t + RG_t}{(1+d)^{t-1}}$$

$$C_{RIM} = \sum_{t=1}^N \frac{UIC_t + RL_t + PRC_t + INC_t}{(1+d)^{t-1}}$$

- UAC_t = Utility avoided supply costs in year t
- UIC_t = Utility increased supply costs in year t
- RG_t = Revenue gain from increased sales in year t
- RL_t = Revenue loss from reduced sales in year t
- PRC_t = Program administrator costs in year t
- INC_t = Incentives paid to the participant by the sponsoring utility in year t

The following calculations are based on the budgeted participation levels for year one of the program.

See response 7k to the first PSC data request for the illustrative example of the rate mechanism which details the recoveries for year one of the program. This example includes the projected program expenditures and the calculations of commodity conservation.

Program budget and conservation estimates per appliance are included in the Program Document, submitted as Exhibit 1 to the DSM application.

**Delta Natural Gas Company, Inc.
 Conservation/Efficiency Program
 Ratepayer Impact Measure (RIM) Test**

$$B_{RIM} = \sum_{t=1}^N \frac{UAC_t + RG_t}{(1+d)^{t-1}}$$

| t | UAC _t | RG _t | B _{RIM} |
|----|------------------|-----------------|------------------|
| 1 | 57,605 | 205,292 | 262,897 |
| 2 | 57,605 | 16,756 | 74,361 |
| 3 | 57,605 | 16,756 | 74,361 |
| 4 | 57,605 | 16,756 | 74,361 |
| 5 | 57,605 | 16,756 | 74,361 |
| 6 | 57,605 | - | 57,605 |
| 7 | 57,605 | - | 57,605 |
| 8 | 57,605 | - | 57,605 |
| 9 | 57,605 | - | 57,605 |
| 10 | 57,605 | - | 57,605 |
| | 576,052 | 272,316 | 848,368 |

8.232% Discount Rate

\$623,214 NPV

- UAC_t = Utility avoided supply costs in year t
- RG_t = Revenue gain from increased sales in year t

**Delta Natural Gas Company, Inc.
 Conservation/Efficiency Program
 Ratepayer Impact Measure (RIM) Test**

$UAC_t =$ Utility avoided supply costs in year t

| t | (1) Ccf Conserved | (2) Projected Gas Cost* | (1) x (2) UAC _t |
|----|-------------------------|-------------------------------|-------------------------------|
| 1 | 40,289 | \$ 1.430 | \$ 57,605 |
| 2 | 40,289 | \$ 1.430 | \$ 57,605 |
| 3 | 40,289 | \$ 1.430 | \$ 57,605 |
| 4 | 40,289 | \$ 1.430 | \$ 57,605 |
| 5 | 40,289 | \$ 1.430 | \$ 57,605 |
| 6 | 40,289 | \$ 1.430 | \$ 57,605 |
| 7 | 40,289 | \$ 1.430 | \$ 57,605 |
| 8 | 40,289 | \$ 1.430 | \$ 57,605 |
| 9 | 40,289 | \$ 1.430 | \$ 57,605 |
| 10 | 40,289 | \$ 1.430 | \$ 57,605 |
| | | | \$ 576,052 |

- (1) Total projected Ccf savings, based on budgeted participation levels in year one of the program. These amounts continue to be saved year after year.
- (2) As originally filed, the projected gas cost for subsequent years was based on the Department of Energy "Annual Energy Outlook". Per the Commission request in KYPSC DR2-1d, the gas cost has been updated using Delta's most recent GCR rate of \$1.4298, per Ccf (case 2008-00102).

Note: the above analysis is based on the CCF conserved from a single year of participation in the CEP

**Delta Natural Gas Company, Inc.
 Conservation/Efficiency Program
 Ratepayer Impact Measure (RIM) Test**

RG_t = Revenue gain from increased sales in year t

| t | (1) CEPCR | (2) CEPLS | (3) CEPI | RG_t |
|----|--------------|--------------|-------------|---------|
| 1 | 167,120 | 16,756 | 21,416 | 205,292 |
| 2 | | 16,756 | | 16,756 |
| 3 | | 16,756 | | 16,756 |
| 4 | | 16,756 | | 16,756 |
| 5 | | 16,756 | | 16,756 |
| 6 | | | | - |
| 7 | | | | - |
| 8 | | | | - |
| 9 | | | | - |
| 10 | | | | - |
| | 167,120 | 83,780 | 21,416 | 272,316 |

(1) - (3) Represents the individual components which comprise the CEP cost recovery. Amounts for year one are based on the year one program budget and expected participation.

For further explanation on the calculations behind (1) - (3) see the proposed tariff included with the application for Case 2008-00062

- (1) CEPCR represents the program cost recovery of expenses for the given year. As noted this analysis is for a single year of participation, therefore the CEPCR is recovered where $t=1$.
- (2) CEPLS represents the lost sales attributable to participation in the CEP. Lost sales for a given year are recovered annually through the CEP mechanism until the next general rate case when rates can be reset. Since this analysis is for a single year of participation the lost sales remain constant until the next general rate case. For the purpose of this analysis the next general rate case anticipated in five years based on the requirements of the proposed CRS tariff.
- (3) CEPI represents the incentive earned by the company based on the conservation in the given year. As noted this analysis is for a single year of participation, therefore the CEPI is recovered where $t=1$.

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Ratepayer Impact Measure (RIM) Test**

$$C_{RIM} = \sum_{t=1}^N \frac{UIC_t + RL_t + PRC_t + INC_t}{(1+d)^{t-1}}$$

| t | (1) UIC _t | (2) RL _t | (3) PRC _t | (4) INC _t | (1) + (2) C _{RIM} |
|----|-------------------------|------------------------|-------------------------|-------------------------|-------------------------------|
| 1 | - | 16,756 | 167,120 | 120,400 | 304,276 |
| 2 | - | 16,756 | - | - | 16,756 |
| 3 | - | 16,756 | - | - | 16,756 |
| 4 | - | 16,756 | - | - | 16,756 |
| 5 | - | 16,756 | - | - | 16,756 |
| 6 | - | - | - | - | - |
| 7 | - | - | - | - | - |
| 8 | - | - | - | - | - |
| 9 | - | - | - | - | - |
| 10 | - | - | - | - | - |
| | - | 83,780 | 167,120 | 120,400 | 371,300 |

8.232% Discount Rate

\$332,146 NPV

- UIC_t = Utility increased supply costs in year t
- RL_t = Revenue loss from reduced sales in year t
- PRC_t = Program administrator costs in year t
- INC_t = Incentives paid to the participant by the sponsoring utility in year t

- (1) No known increased supply costs
- (2) see RG; column (2)
- (3) see RG; column (3)
- (4) Scheduled per calculation performed for Participant Test

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Total Resource Cost (TRC) Test**

$$NPV_{TRC} = B_{TRC} - C_{TRC}$$

| | | |
|---------------|----|---------|
| $B_{TRC} =$ | \$ | 382,523 |
| $C_{TRC} =$ | | 318,002 |
| $NPV_{TRC} =$ | \$ | 64,521 |

Benefit-Cost Ratio 1.20

Conclusion:

Since the net present value is greater than zero, the program is a less expensive resource than the supply option upon which the marginal costs are based.

Where:

NPV_{TRC} = Net present value of total cost of the resource

B_{TRC} = NPV of benefits of the program

C_{TRC} = NPV of costs of the programs

$$B_{TRC} = \sum_{t=1}^N \frac{UAC_t + TC_t}{(1+d)^{t-1}}$$

$$C_{TRC} = \sum_{t=1}^N \frac{PRC_t + PCN_t + UIC_t}{(1+d)^{t-1}}$$

UAC_t = Utility avoided supply costs in year t

TC_t = Tax credits in year t

UIC_t = Utility increased supply costs in year t

PRC_t = Program administrator costs in year t

PCN_t = Net participant costs

The following calculations are based on the budgeted participation levels for year one of the program.

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Total Resource Cost (TRC) Test**

$$B_{TRC} = \sum_{t=1}^N \frac{UAC_t + TC_t}{(1+d)^{t-1}}$$

| t | (1) UAC _t | (2) TC _t | B _{TRC} |
|----|-------------------------|------------------------|------------------|
| 1 | 57,605 | - | 57,605 |
| 2 | 57,605 | - | 57,605 |
| 3 | 57,605 | - | 57,605 |
| 4 | 57,605 | - | 57,605 |
| 5 | 57,605 | - | 57,605 |
| 6 | 57,605 | - | 57,605 |
| 7 | 57,605 | - | 57,605 |
| 8 | 57,605 | - | 57,605 |
| 9 | 57,605 | - | 57,605 |
| 10 | 57,605 | - | 57,605 |
| | 576,052 | - | 576,052 |

8.232% Discount Rate

\$382,523 NPV

UAC_t = Utility avoided supply costs in year t

TC_t = Tax Credits in year t

- (1) Scheduled per calculation performed for RIM Test
- (2) Scheduled per calculation performed for Participant Test

**Delta Natural Gas Company, Inc.
Conservation/Efficiency Program
Total Resource Cost (TRC) Test**

$$C_{TRC} = \sum_{t=1}^N \frac{PRC_t + PCN_t + UIC_t}{(1+d)^{t-1}}$$

| t | (1) PRC _t | (2) PCN _t | (3) UIC _t | C _{TRC} |
|----|-------------------------|-------------------------|-------------------------|------------------|
| 1 | 167,120 | 177,060 | - | 344,180 |
| 2 | - | - | - | - |
| 3 | - | - | - | - |
| 4 | - | - | - | - |
| 5 | - | - | - | - |
| 6 | - | - | - | - |
| 7 | - | - | - | - |
| 8 | - | - | - | - |
| 9 | - | - | - | - |
| 10 | - | - | - | - |
| | 167,120 | 177,060 | - | 344,180 |

8.232% Discount Rate

\$318,002 NPV

- PRC_t = Program administrator costs in year t
- PCN_t = Net participant costs
- UIC_t = Utility increased supply costs in year t

- (1) Scheduled per calculation performed for RIM Test
- (2) Represents net participant costs which is the incremental cost to the participant of purchasing a high-efficiency appliance versus one with standard efficiency. Amount scheduled from PC_t from the Participant Test.
- (3) No known increased supply costs as a result of operating the CEP

**Delta Natural Gas Company, Inc.
 Conservation/Efficiency Program
 Program Administrator Cost Test**

$$NPV_{pa} = B_{pa} - C_{pa}$$

| | | |
|--------------------------------|-----------|----------------|
| $B_{pa} =$ | \$ | 371,865 |
| $C_{pa} =$ | | 265,652 |
| $NPV_{pa} =$ | \$ | 106,213 |

Benefit-Cost Ratio **1.40**

Conclusion:

Since the net present value is greater than zero, the program would decrease costs to the utility

Where:

- NPV_{pa} = Net present value of total cost of the resource
- B_{pa} = NPV of benefits of the program
- C_{pa} = NPV of costs of the programs

$$B_{pa} = \sum_{t=1}^N \frac{UAC_t}{(1+d)^{t-1}}$$

$$C_{pa} = \sum_{t=1}^N \frac{PRC_t + INC_t + UIC_t}{(1+d)^{t-1}}$$

- UAC_t = Utility avoided supply costs in year t
- PRC_t = Program Administrator Costs in year t
- INC_t = Incentives paid to the participant by the Utility
- UIC_t = Utility increased supply costs in year t

The following calculations are based on the budgeted participation levels for year one of the program.

Natural Gas Company, Inc.
 Conservation/Efficiency Program
 Administrator Cost Test

$$\frac{UAC_t}{(1+d)^{t-1}}$$

(1)

| t | UAC _t |
|----|-------------------|
| 1 | \$ 57,605 |
| 2 | \$ 57,605 |
| 3 | \$ 57,605 |
| 4 | \$ 57,605 |
| 5 | \$ 57,605 |
| 6 | \$ 57,605 |
| 7 | \$ 57,605 |
| 8 | \$ 57,605 |
| 9 | \$ 57,605 |
| 10 | \$ 57,605 |
| | <u>\$ 576,052</u> |

8.867% Discount Rate

\$371,865 NPV

scheduled per calculation performed for RIM test

Utility avoided supply costs in year t

| | | 2007-00089, as filed <u>12/31/2006</u> | | | 2007-00089, as settled <u>12/31/06</u> | |
|-----------------------------|----------------------|---|------------|-----------------------------|---|---------------|
| | | Ratios | Cost Rates | Weighted Cost of Capital | Return | Cost Rates |
| Equity | | | | | | |
| Per DNG Balance Sheet | (52,736,947) | | | | | |
| Unbilled | 1,482,514 | | | | | |
| Minimum Pension Liability | - | | | | | |
| Subsidiaries ** | 621,393 | | | | | |
| Unknown to balance to order | - | | | | | |
| | <u>(50,633,040)</u> | 39.67% | 12.100% | 4.800% | 10.500% | 4.165% |
| Long Term Debt | (59,870,000) | 46.90% | 6.814% | 3.196% | 6.814% | 3.196% |
| Short Term Debt | <u>(17,146,346)</u> | 13.43% | 6.487% | <u>0.871%</u> | 6.487% | 0.871% |
| | <u>(127,649,386)</u> | | | <u>8.867%</u> | | <u>8.232%</u> |